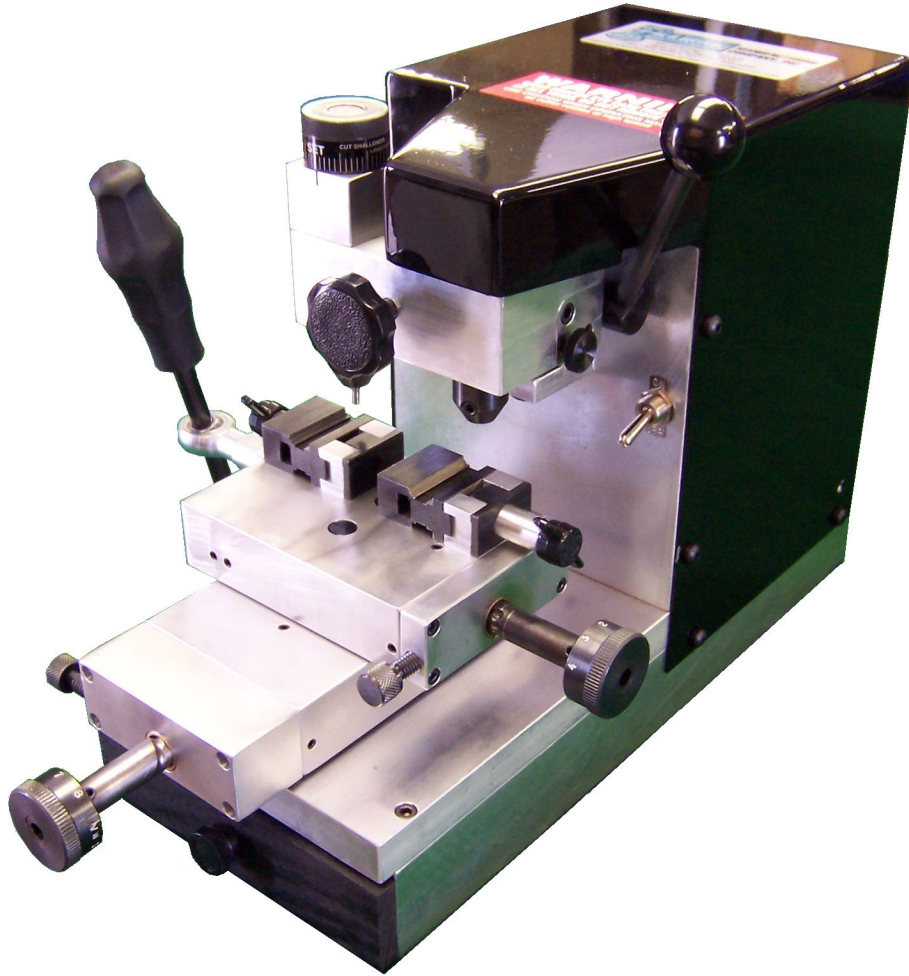


Framon Sidewinder 2 Instruction Manual

Framon Part #SD2



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Introduction

Thank you for purchasing a Framon Sidewinder 2! Your new machine will give you years of trouble-free service by following the instructions in this manual & using common sense with the machine. Please read this manual thoroughly and understand how to use the machine & maintain it to ensure a long service life. We would appreciate your taking a moment to fill out & mail your warranty registration card.

The Sidewinder 2 is designed to accurately duplicate almost all high security keys in use today and can also code cut side milled keys. These keys are currently being used by Mercedes Benz, Opel, BMW, Volvo, Saab, Infiniti, Lexus, VW, Audi, Honda and Chevrolet. All of the above keys can be duplicated using the Sidewinder 2 without the need for adapters or special cutters. Machines are typically furnished with Volkswagen, Honda, Lexus Long & Short and Hyundai/Kia Four Track code rods unless special ordered differently.

NOTE: If you ordered the Sidewinder machine as a duplicator only, you will not have received accessories to code cut with the machine. You may upgrade your machine at a later time (serial numbers > 901900 and above only) if you desire.

Connecting the Machine To A Power Supply

The Framon Sidewinder 2 can be equipped with a 110V AC or 220V AC motor. If your machine is equipped with the 110V motor, plug the machine into a properly grounded outlet. If you are planning on using an inverter, we recommend a minimum of 2000-Watt continuous, 4000-Watt peak.

If you had your machine equipped with the 220V AC motor, you will need to attach a plug to the end of the cord.

Warranty

The warranty on the Framon Sidewinder 2 machine is in effect for a period of one year from the date of purchase. Framon Manufacturing Company will repair or replace, at our option, any part of the machine proven to be defective in quality or workmanship. Within the first year, Framon will absorb all costs for repair or replacement including shipping to and from our facility. Repairs are normally received & repaired in one day, and reshipped the next. After the first year, we will charge a flat repair fee, the cost of any parts, and shipping. Cutters are not covered by this warranty.

If you need to return a machine for repair, regardless of warranty condition, you must first contact us by phone to receive a repair order. We will direct you to our website (www.framon.com) where you can print out a repair order, which must accompany any machine returned. Machines returned for repair must also be packed properly. Styrofoam popcorn is not an acceptable packing material, as it breaks down in shipping and enters the motor housing, which must be then torn down. An extra repair charge will be applied to any machine arriving in popcorn packaging. All accessories must be included with the machine.

Operating Rules

CAUTION: Do not attempt to operate the Framon Sidewinder 2 until you have read the owners' manual carefully. Learn the machine's applications & limitations.

- Do not force the cutting procedure. The machine will do a better job when operated at the rate for which it was designed.
- Keep the work area clean. Wear proper apparel. Loose clothing, hair or jewelry can get caught in the rotating cutter.
- Secure the pattern key and blank correctly.
- Be sure the machine is unplugged when using the allen wrench to secure cutters.
- Keep the machine clean of dust & chips.
- Remove the allen wrench/hex key immediately after making adjustments.
- Keep the cutter sharp and replace as often as necessary for optimal cutting.
- Use the machine only for the purpose for which it was designed.
- Always wear safety glasses. The operation of this machine can result in key shavings being thrown from the work area.
- Make sure the work area is well lighted.

Machine Basics

Moving the lever on the left side of the machine controls the carriage of the Sidewinder 2. The carriage should easily slide forward & back as well as left and right. The key vises are mounted to the carriage, or "table". Cutter depth adjustments will be made with the lever on the right side of the machine in combination with the cutter head clamp nut in the front of the machine.

When duplicating, we suggest removing the code rods from the machine, as they do induce a slight drag on the carriage when moving the table. When code cutting, we suggest removing the feed lever on the left side of the machine to reduce the drag it instills on the carriage.

Framon has a YouTube channel which contains various videos on the usage of the Sidewinder 2. Adjusting new kits, cutting keys, and machine setup are all detailed in the videos. Visit www.youtube.com and search for "Framon Mfg" to locate our channel.

Milling Instructions

The process of cutting a key using the Sidewinder 2 involves removal of material from the surface of the key blade. An end mill is used to cut the key. The end mill rotates clockwise. There are two ways to cut with an end mill; "conventional cutting" and "climb cutting". See the illustration on page 4.

Keys cut on the Sidewinder 2 must be cut using the "conventional cutting" whenever possible. This method can be thought of as feeding the material against the rotation of the end mill. If you examine the "climb cutting" illustration you can see that the cutter's rotation would basically draw the key into it. Again, use only the "conventional cutting" method with the Sidewinder 2 (there are times when code cutting that you will use "climb cutting" as you move up the key blade).

Cutting Tips

- Keys cut on the machine should be cut using the “conventional” cutting method.
- Always give the cutter time to cut
- Too little side pressure can result in an improperly cut key
- Too much side pressure can damage the cutter
- Remove burrs from the first side of the key before flipping it over to cut the second side. This will assure that the blank is laying flat in the vise.
- Cutting too slow can heat the cutter up from rubbing on the side of the key. This will destroy the heat-treatment on the cutter. The actual cutting of one side of a four-track key should take only one pass and take about ten seconds.

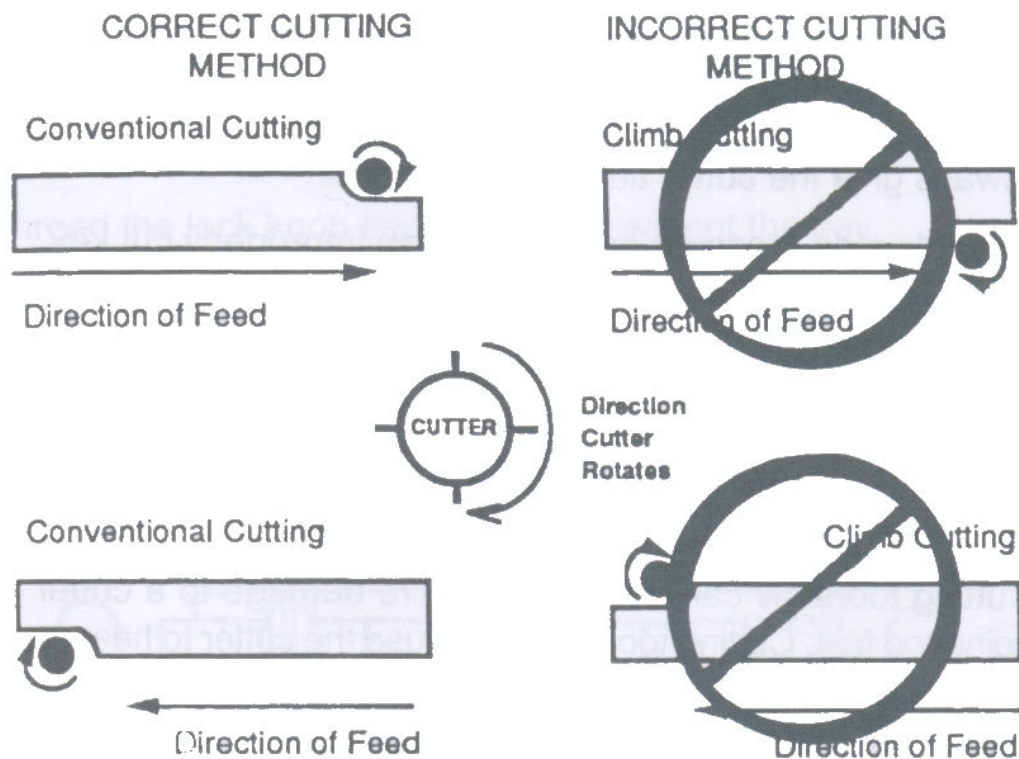


Figure 1: Cutting Methods

Key Vises

The vises of the Sidewinder 2 are reversible to provide the best clamping pressure for different shapes of side-milled keys. You should find two sets of vises with the machine (VW/Audi dealers will find ONLY the VW Vises) unless ordered differently.

Side “A” jaws have even steps to accommodate most side milled keys. Use the “A” vises except for the following cases:

Use side “B” to hold Mercedes two-track keys. There is a slight step on one side of the vise that should go over the top of the key as it sits in the vise.

Use the VW/Audi vises for Porsche, VW, and Audi center-cut keys. The vises have “V” stamped on one side. This is for the standard VW key. If you need to cut a valet key, use the side without a stamp.

NOTE: When cutting VW/Audi keys, you can only copy from primary to primary or valet to valet. The machine will not duplicate a valet key from a primary key of vice-versa.

To remove the vises from the machine:

- Slide the carriage out from beneath the cutter area. This will provide sufficient room to reverse the vise jaws. Be sure to clean all chips from the vises & table before replacement.
- Back the vise clamp nut (plastic nut that tightens & loosens the vise) out until spring pressure is relieved.
- Using two hands, separate the vise bottom and t-stop away from the aluminum posts connected to the table. Lift the entire vise straight up. Do not unscrew the clamp nut completely; the vise does not need to be taken completely apart to remove it from the machine.
- Reinstall the new vise by reversing the above steps. The vise and t-stop should hug the aluminum posts and snap into place.

Aligning Keys In Vises

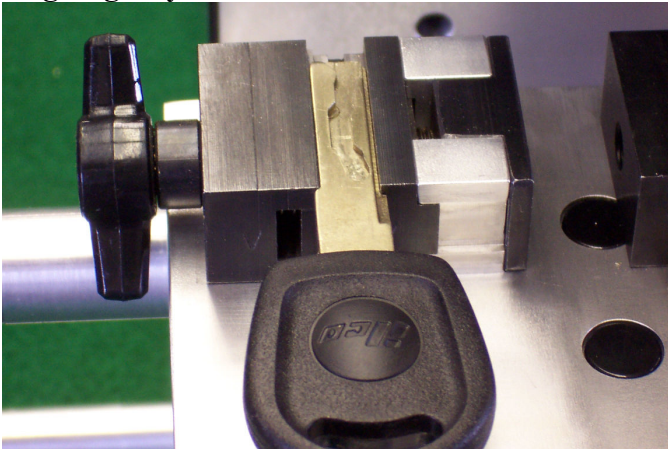


Figure 2: Aligning Keys Using Shoulder Stop

Shoulder-Stopped Keys

Many side milled keys have one or two shoulders from which alignment can be obtained. Insert the keys into the vises, and make certain that the same shoulder for both keys is used to attain alignment.

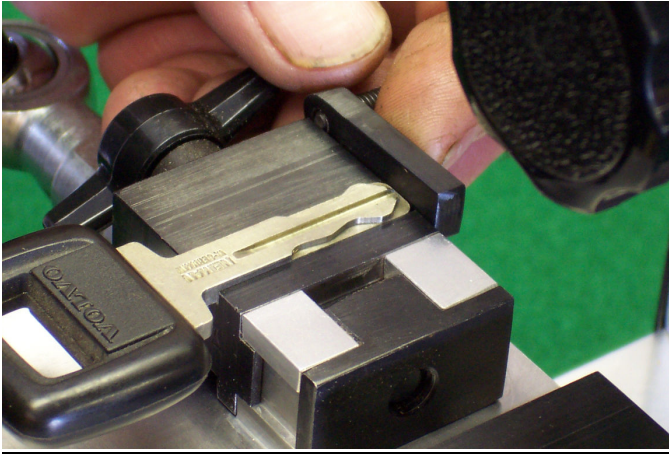


Figure 3: Using the hand-held tip stop

Tip-Stopped Keys using the hand-held tip stop

Most tip stopped keys will be aligned with the end of the vise using the hand-held tip stop. In cases where keys are not long enough to reach the end of the vise, use the procedure below to align the keys.

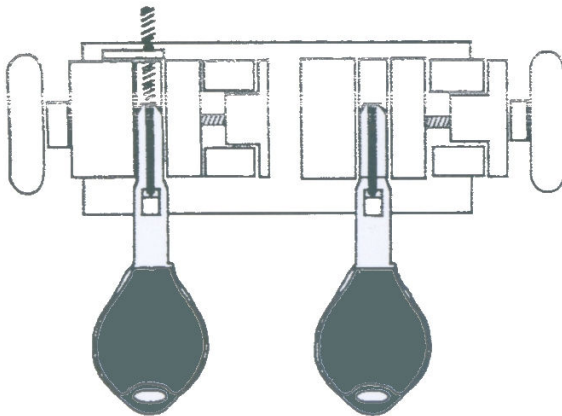


Figure 4: Using the Hand-Held Tip Stop

Aligning Keys Using The Adjustable Tip Stop

The adjustable stop is designed for non-shouldered keys whose blades are too short to reach the built-in stop. This stop is included to operate as a varying length tip stop. It is first positioned for the tip of the pattern key at the far edge of the vise jaws. The threaded screw is then rotated until it contacts the tip of the key. The adjustable stop is then positioned in front of the key blank tip to determine the proper position. **This procedure will only be used when duplicating, never for code cutting!**

Cutters and Guides

The Sidewinder 2 includes three guides and six cutters at time of purchase. Two 3/32" cutters, two 3mm cutters, two 5/32" cutters, one 3/32" guide, one 3mm guide and one 5/32" guide are included. We have recently included a "pink tube" plunge cutter as well. Usage of the cutters and guides are as follows:

External cut keys, such as BMW, Mercedes, Saab, Volvo: 5/32" cutter & guide

Internal cut keys, such as Lexus, Mazda, Hyundai & Kia: 3/32" cutter & guide for duplicating

Internal cut keys such as VW & Audi: 3mm cutter & guide

Code cutting internal 4 track keys such as Lexus, Kia, and Hyundai: 3/32" pink tube cutter

You may always use a smaller cutter & guide to duplicate a key but cannot use a larger cutter & guide. For example, you can use the 3mm cutter & guide to duplicate Mercedes 4 track keys; however you may need to remove some material off of the edge of the key that the smaller cutter does not catch on the first pass.

NOTE: VW & Audi dealers will receive only the 3mm cutter & guide.

NOTE: If you ordered the Sidewinder as a duplicator only, you will have only received the 5/32" and 3/32" cutters and guides.

Preparing To Duplicate a Key

Before cutting a key on the Sidewinder, there are four basic steps that must be taken:

1. Align the cutter & guide to each other (set depth)
2. Align cutter & guide to pattern key
3. Align keys properly (tip stop / shoulder stop)
4. Use proper cutting procedure (conventional cut)

1. Aligning the cutter & guide to each other

This step must be done any time a cutter or guide is changed in the machine, or if you change vises (turning the vises over from side A to B or installing a different set). **Once this step is complete, you do not have to repeat it for each key you make.**

Insert two identical keys into the vises. Be sure the vises are on the same side. With the vise table all the way towards the user, insert the guide into the left collet until it bottoms out. Tighten the allen screw to secure the guide in place. Be sure that the depth adjusting knob is on "SET", the cutter head clamp nut is loosened, and the guide lock knob is loosened. See Figure 5.

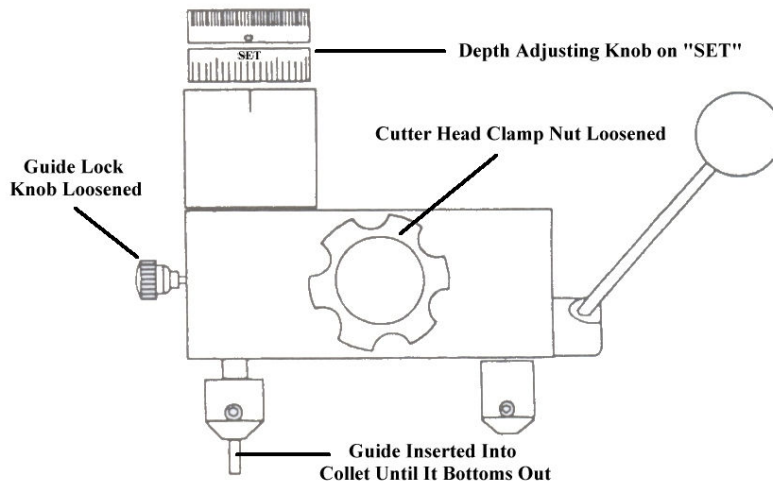


Figure 5: Preparing To Align Cutter & Guide

Insert the cutter into the right collet but *do not* tighten it. Slide the vise table under the cutter & guide so that the blank keys are positioned directly below the cutter and guide. Allow the cutter to drop down onto the surface of the key blank. Next, pull down on the spindle lever until the guide is completely compressed (there should be no up-down movement to the guide if it is fully compressed). While the guide is being compressed, you should be able to see the cutter being pushed up into its' collet. With the spindle lever pulled down completely, tighten the cutter head clamp nut. This will hold the cutter head assembly in the lowered position. You can remove your hand from the spindle lever.

NOTE: When pulling down on the spindle lever, do not use excessive pressure.

Check the guide once again to make sure there is no up-down travel. Next, tighten the cutter with the 1/8" allen wrench supplied in the drawer. The cutter & guide are now calibrated properly to each other. Loosen the cutter head clamp nut to raise the cutter head back to its normal position. You can perform a visual check by pushing the guide up as far as it will go; the bottom of the guide and bottom of the cutter should be even when the guide is compressed.

2. Align cutter & guide to pattern key

Before actually cutting the key, you must set the proper depth of cut for the particular key you are about to cut. This must be done **without** a key in the right side vise. Also, if you are cutting several copies of the same kind of key (all Mercedes four track for instance) you do not have to repeat this step for each key.

- Loosen the cutter head clamp nut, guide lock knob, and be sure the depth adjusting knob is indicating "SET".
- Insert the pattern key into the left vise and lock it into place. The key must be positioned flat in the vise.
- Position the **cut out** portion of the pattern key under the guide and pull down on the spindle lever until the guide contacts the key. Continue downward pressure

- until the guide shaft bottoms out and the downward movement of the spindle lever stops. Do not use excessive pressure. This step is critical – you must set the proper cut depth for this particular style of key.
- While maintaining pressure on the spindle lever, tighten the cutter head clamp nut to fix the cutting head of the machine in place. You can now relax pressure on the spindle lever; it should remain in the lower position.
 - As a check, the cutter & guide should visually be at the same depth, and the guide should have no up-down travel to it. Also, the guide is pressing down on the pattern key and smooth movement of the table would be difficult (do not move the table yet). This will be taken care of in the next two steps.
 - Turn the depth adjusting knob to the “10” position. You should feel a detent at this position. This adds ten thousandths of clearance between the guide collet and depth screw. You will not see any movement of the guide in this step, however.
 - Lift up on the guide until it stops. You should notice a very slight upward movement of the guide (ten thousandths of travel). Hold the guide in this position with your right hand and tighten the guide lock knob. This will hold the guide in the upper position. You should now be able to move the table back and forth without any resistance.
 - Insert the key blank to be cut into the right vise and tighten it into place. You are now ready to cut the key.

3. Align keys properly

Be sure that both keys you have inserted into the vise are inserted the same way, according to the loading instructions on pages 4-6.

4. Use proper cutting procedure

Using proper cutting procedure will assure smooth cuts and cutter longevity. Determine what type of key you are cutting from the illustrations below and follow the cut direction as shown.

Four Track Type

The four-track type key is used on some Mercedes Benz and BMW models, as well as the new Honda key. This type of key has cuts on the left and right side (as the key is laying flat) as well as both the top and bottom side of the key. All keys in use today are the “convenience” type, which means the cuts on the top and bottom side of the key are the same. Cuts on the left and right side of the key, however, are different.

When cutting this type of key on the Sidewinder, begin your cut at the head of the key, on the right side (as you are facing the machine, see Figure 6). Slowly allow the cutter and guide to enter the cut area, hold pressure to the side, and move the table slowly down the side of the key towards the tip. One pass is all that is required when using the 5/32” cutter and guide.

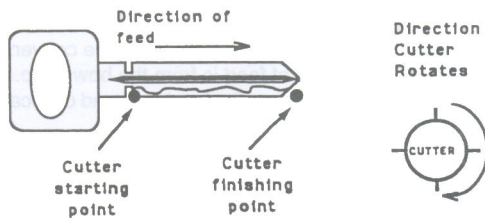


Figure 6: Four Track First Side

Continue around the tip of the key and move back up the left side of the key (Figure 7). Simply put, cut around the key in a “U” or horseshoe shaped pattern. Once you establish cutting the key on the right side, the cutter and guide should stay in contact with the key all the way around to the shoulder on the left.

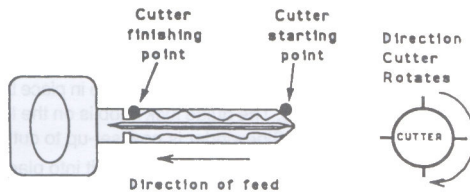


Figure 7: Four Track Second Side

Once this side has been cut, back out the table, turn over the key blank (there is no need to turn over the pattern key) and cut the same way on the opposite side of the key.

Two Track Type

The two-track key is the most common of the side milled keys. The bitting is along only one edge of the blade; either the left or the right when looking from bow to tip. The key is a convenience type, having the same cuts on both side of the key. Although spacing and depths vary from one manufacturer to the next, the duplicating procedure is the same. If the bitting is on the right side (again, looking from bow to tip) begin at the shoulder or just before the first cut nearest the bow (Figure 8). If the bitting is on the left side, begin at the tip of the key and work toward the head of the key (Figure 9).

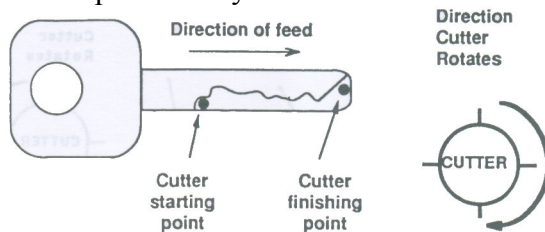


Figure 8: Two-Track Key with Cuts on Right Side

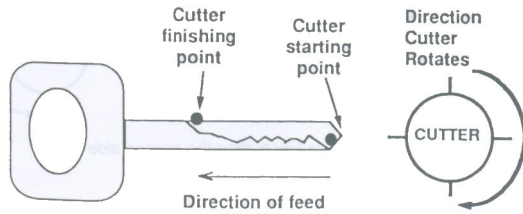


Figure 9: Two-Track Key with Cuts on Left Side

Once the first side has been cut, turn over the key blank (no need to turn over the pattern key) and cut the second side.

Internal Cut Type

SUGGESTION: *Due to the large amount of material that needs to be removed at the tip of Lexus, Hyundai and Kia 4-track keys, we suggest using the 5/32" cutter and guide to precut the tip area of the key. This can be done when you buy a box of blanks using the setup key included with the machine or an existing key. This will extend the life of your 3/32" cutters.*

This type of key has cuts up the center of the key. Due to the smaller cutter size required, it is important to minimize cutter chatter/vibration, as it will easily chip the teeth of the cutter. Use a firm hand when beginning the cuts on this type of key, and try to begin your cutting from an edge of the key that has no cuts, as opposed to running the cutter into a cut portion with nothing to hold pressure against.

When cutting this type of key, begin from the tip on the right side of the key. Feed along the right side from tip to bow, and then reverse for the left side (See Figure 10).

Once this side has been cut, turn over the key blank and cut the second side.

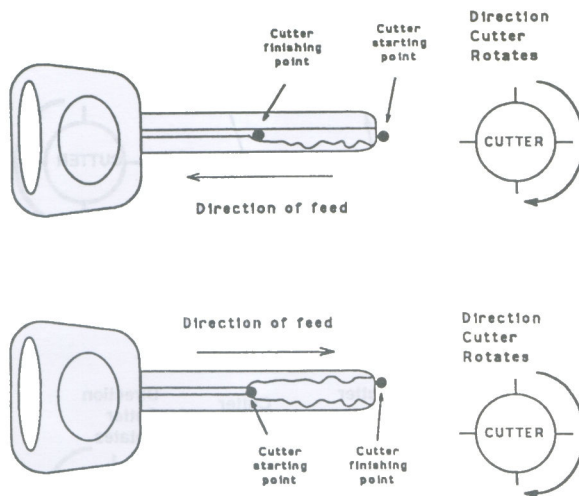


Figure 10: Center Cut Type

After Cutting a Key

Once you have finished cutting the key, you should reset the machine so it is ready for the next key. Remove both keys from the vises. Loosen the Cutter Head Clamp Nut, Guide Lock Knob, and turn the depth adjusting knob back to “SET”. The machine is now ready for the next key. If you have several of the same types of keys to be cut (even if the cuts themselves are different) you do not need to reset the machine for each key.

Code Cutting On the Sidewinder 2

The Sidewinder 2 is equipped with depth and space rods for several manufacturers at time of purchase. Setup of the machine prior to code cutting is done in the same way as for duplicating. The steps for code cutting are as follows:

1. Select proper cutter, guide and vise set for application
2. Align the cutter & guide to each other (set depth)
3. Install proper code rods
4. Use setup key to set cutter depth & prepare key blank
5. Code cut the key from bow to tip

NOTE: Each code kit has specific information on code cutting properly. Be sure to read all instructions at the end of this manual for kit-specific information. If you purchased a newer kit the information may be included in the package. Instructions below are for Volkswagen and Honda. **Keys code cut on the Sidewinder 2 will function properly but will not look like factory cut keys.**

We recommend that when code cutting you use only service keys until familiar with the machine.

1. Selecting proper cutter, guide and vise set for application

See the manufacturer-specific guide at the end of this manual to determine the proper cutter and guide.

2. Align the cutter & guide to each other (set depth)

This procedure is identical to the procedure used for duplicating which is detailed on page 7.

3. Install proper code rods

If not already installed in the machine, you must install the proper code rods. To install the depth rod, remove the small allen screw with the 1/8” allen wrench. The screw is located in front of the right key vise. See Figure 11. The depth rod is shorter than the space rod.

To install the space rod, remove the small allen screw from the lower table, which is located just in front of the vise table. See Figure 12.

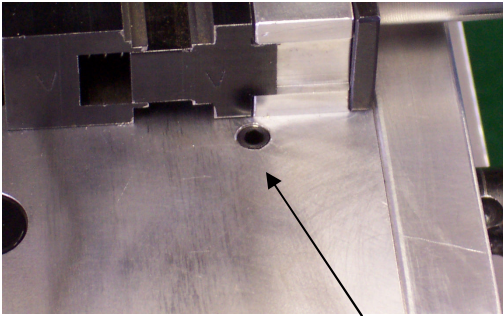


Figure 11: Depth Rod Allen Screw

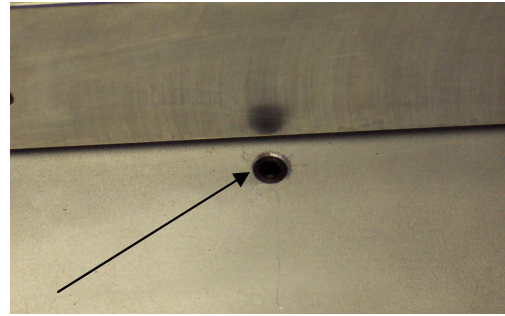


Figure 12: Space Rod Allen Screw

With the allen screws removed, move the carriage to the left. Insert the depth rod into the

hole on the right side of the machine and slide it in until it stops. Begin rotating the rod (right hand screw) as you look down into the hole just in front of the vise. You should see the lock nut rotating as you turn the depth rod. As you rotate the rod you will see an opening in the lock nut which should align with the hole. Once you are in this position, insert the long end of the allen wrench into the hole and continue rotating the depth rod. After a few turns the rod should tighten up. Do not over tighten the rod!



Figure 13: Allen Wrench Fully Inserted

Repeat this procedure for the space rod. Be sure to reinstall both allen screws into the access holes before cutting a key.

4. Use setup key to set cutter depth & prepare key blank

The setup key furnished with your kits serve a variety of purposes. First, the setup key helps to set the proper depth of cut (how far down into the key the cutter cuts). Next, the setup key is used to “prepare” your key blank to all shallow cuts and a proper tip cut. Each setup key has all shallow cuts the entire length on one side. Last, the setup key typically has one deep cut on it to aid in adjusting the depth or space rod if needed (see procedure on page 16).

When you are preparing to code cut a key, use the setup key as described in Step 2 on Page 8 to set the cut depth for the key you are about to cut. Think of the setup key as the “original” that you are duplicating from. You will use the setup key to set the proper depth of cut. Once the depth of cut is set, insert your blank and copy the #1 cuts onto it as if you were duplicating a key. Be sure to copy the proper tip cut onto the key as well; if you do not copy the tip cut onto your blank the key will most likely not enter the lock.

Once this step is complete, remove the setup key from the left vise.

A Word about Code Cutting

The Sidewinder 2 is capable of code cutting keys which should work easily in each lock on the automobile. Each machine has been tested prior to being shipped and all included code rods have already been set for the machine. You do not need to readjust them.

A few suggestions when code cutting:

- We recommend that you cut all shallow cuts onto your blank using the setup key. You may also cut the shallow cut using the rods themselves, but using the setup key gives better results.
- You may wish to prep several key blanks for future use so that the shallow cuts are already in place and the angle at the tip of the key is proper. You would then only need to use the setup key to set the proper cut depth.
- You may find it easier to “help the carriage” as suggested in the video when you are turning the space rod into the key. Use your left hand to put a slight amount of pressure on the carriage as you use your right hand to turn the space rod.
- When cutting keys on the machine, you will **NOT** return to the shallow depth position each time before you space to the next cut, unless your next cut is in fact a shallow depth.
- You will need to think ahead one cut as you make your key. Keys cut on the machine must closely replicate a “laser cut” which means that the peaks between the cuts need to be removed. To do this, remember the following: if your next cut is *shallower* than the one you have just made, you need to turn the **depth rod first**, then space to the next position. Conversely, if your next cut is *deeper* than the one you have just made, you need to turn the **space rod first**, and then turn the depth rod to make the proper cut. If this is not followed each time, you will miscut a key.
- Inspect the key after you cut it. There should be no sharp edges to any cut or areas on the key that could cause a wafer to become trapped. If any area on the key looks questionable, use a flat file to taper the edge of the cut.
- Most importantly, **NEVER** force a key into the lock. If the key is not entering the lock smoothly, do not force it or you may destroy the lock. There are no “inexpensive” high security locks to our knowledge.
- Do not allow the cutter to sit in any position of the key for longer than 5-10 seconds without moving it or turning off the motor. Doing so can cause damage to the cutter.

5. Code cut the key from bow to tip

The actual code cutting procedure should take very little time once you are accustomed to the machine. In this example we will originate a Volkswagen key with cuts of 33124423. We will assume that you have already traced the #1 and tip cut onto both sides of the blank using the setup key and have removed the setup key from the vise. Your blank should still be in the right side vise.

To change the machine from “duplication” mode to “code cutting” mode, tighten both thumb screws completely, and then back off until the rods turn freely. See figures 14 & 15.

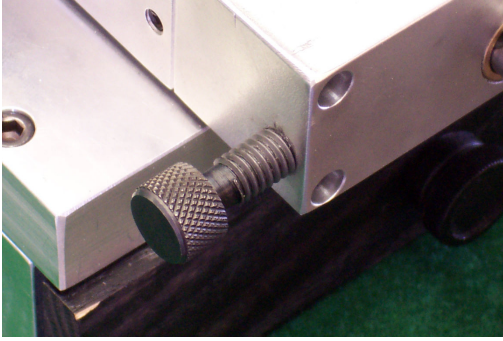


Figure 14: Depth Thumb Screw

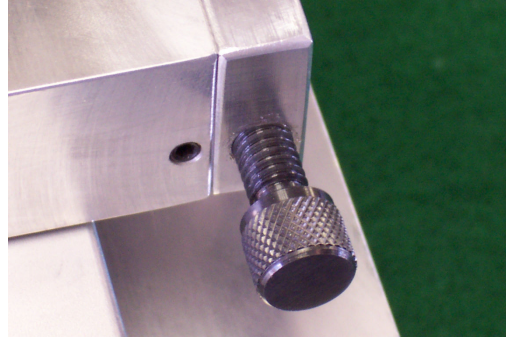


Figure 15: Spacing Thumb Screw

To engage the depth & space rods, turn the rods until you feel them engage. You may have to reposition the table to allow the rods to engage the track. Once engaged, the rods should click from one position to the next in a positive manner. If it is difficult to turn the rods, back off the thumb screw slightly. If the rods turn easily but seem to “skip” a position, tighten the thumb screws.

To cut the VW key with cuts of 33124423, be sure that the depth rod is located in the #1 depth position. The space rod will have a positive stop which locates the key roughly 3/4” from the cutter. With the depth rod in a #1 position, turn on the machine and begin turning the space rod and locate the carriage at the first cut at the bow of the key. You may remove a small amount of material as the cutter is located in the first position, this is normal.

The first depth is #3; turn the depth rod to the #3 position. Turn the rod smoothly and allow the cutter time to cut. Our first cut is now made.

As mentioned above, the user must always look ahead one cut prior to turning either depth or space rod. Since the next cut is a #3 depth, turn the space rod to the second position. Our depth rod is positioned properly and the key now has #3 cuts in the first two positions.

The next cut is a #1 depth. Since the cut is shallower than our current cut, we must turn the depth rod to #1 before turning the space rod. After turning the depth to a #1 position, space over to the third position.

The fourth cut on the key is a #2 depth. This is deeper than our current cut; we must turn the space rod to the #4 space, and then turn the depth rod to a #2 position. Our key should now have cuts of 3312.

The fifth & sixth cuts are #4 depths, deeper than our current depth of #2. Space to the fifth position, turn the depth rod to a #4 depth. Our adjacent cut is a #4 depth; space to the sixth position.

In the 7th position a #2 cut will be made by turning the depth rod to #2, then spacing to the 7th position. The last cut is a #3 depth (deeper); space to the 8th position then turn the depth rod to #3.

At this point the first side of the key is almost complete. After the last cut is made on the key, “run out” the last space to the key loading position. This simply means to leave the depth rod set to the last depth you have made (in our case a #3 depth) and turn the space rod to move the key to the loading position.

Remove the key from the vise and clean any shavings from the area. We recommend that you run a flat file over the key to remove any burrs that may have developed from the cutting process. Turn over the key and repeat the process for side two.

Cutting Honda Keys

The procedure for cutting an externally-cut key such as Honda will be similar to the VW key with the following differences:

The Honda key is tip stopped. Lay the hand-held tip stop flat on the end of the vise, slide the key to the tip stop and clamp the key in the vise.

Cut the right side of the key in the same manner as the Volkswagen key. Once you have made all of the right side cuts on the key, turn the space rod to the key loading position. Turn the depth rod to the #1 depth position.

There is a small channel that “connects” the left and right side cuts on the depth rod. Loosen the depth thumb screw and gently push the carriage to the right. The carriage should slide to the right and snap into place in the #1 depth position on the left side of the key. Tighten the thumb screw up as before, turning it in fully and backing off ½ turn.

To cut the left side of the key, turn the space rod to the #1 space position at the bow of the key and make cuts on the key as usual. With the first side complete, clean the vise and remove any rough edges from the first side of the key. Turn the key over, clamp it in the vise and cut the second side.

Once the code key has been finished, visually examine the key and hand file and rough or sharp edges.

Adjustments & Lubrication of the Sidewinder 2

The Sidewinder 2 machine has no user adjustments for side-to-side spacing. The machine is set at the factory and should not require adjustment. The only other adjustment to the machine is the depth of cut, which is detailed on pages 7-8.

The vise table of the machine rides on hardened steel pins and hardened balls and should never need lubrication.

Cutters should be changed if they do not easily cut a key or if excessive vibration is felt. You can also visually check a cutter to assure there are no nicks in the cutter. Some

customers prefer to add a small drop of cutting oil to the cutter or the surface of the key before cutting for longer cutter life.

Adjusting Depth or Space Rods

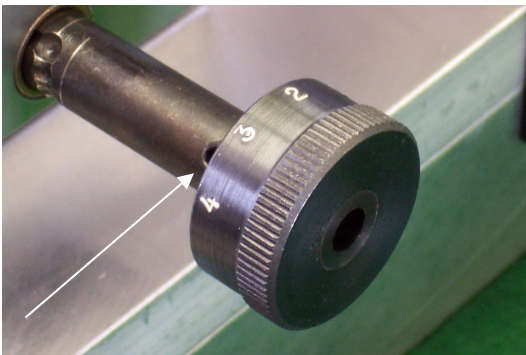
The depth and space rods furnished with your machine have been factory tested and should not need adjustment. The rods are designed to be removed & reinstalled on the machine with no need for adjustments when changing.

If you buy additional code kits for the machine or need to adjust the rods you will need the setup key furnished with your kit or a set of dial calipers. Calipers work best as they read actual depth of cut, which can be compared to known information from Genericcode ME or other sources. Using the setup key is also an accurate method to calibrate the code rods.

Most setup keys (VW & Honda among others) are cut to all #1 (shallow) depths along the length of the key. Each setup key will also contain one cut on the key on the second side that will be cut to the deepest depth. Using the combination of cuts and positions will allow you to adjust the code rod accurately.

To adjust depth or space rods, begin by inserting the proper size guide into the right collet. The guide is a more accurate method of aligning the rod than the cutter. The correct size guide must be used! For Volkswagen, use the 3mm guide. Honda will use the 5/32" guide. If you are aligning a different kit, see the instructions at the end of the manual for proper guide selection and setup key information. If you do not find the information at the end of this manual, visit our website or contact Framon Manufacturing for specifics, as new kits are being introduced regularly.

If not already in place, install both the depth and space rod in the machine as described on pages 12-13 with one exception – use a screwdriver to turn the rod into the machine against the stop. Since the rods have not been adjusted yet the external shell of the rod is loose and should not be used to turn in the rod. Insert the setup key into the right vise, using the proper method for the key. Lower the guide onto the surface of the key and lock it into place. Back the carriage out and engage the depth and space rods by tightening the thumb screws.



There are two 3/32" allen screws located just inside the thumb turn of each rod. Loosen both screws on the depth rod. You will also need a flat screwdriver to adjust the rod. The screwdriver is used to adjust the rod by inserting it into the end of the thumb turn. Rotating the screw moves the carriage either left-right (depth rod) or forward-backward (space rod). See Figure 16.

Figure 16: 3/32" Allen Screw

Turn the depth rod to the #1 position and begin to move the carriage toward the guide with the space rod. If it appears that the guide will hit the edge of the key, insert the screwdriver in the end of the depth rod & back it off slightly.

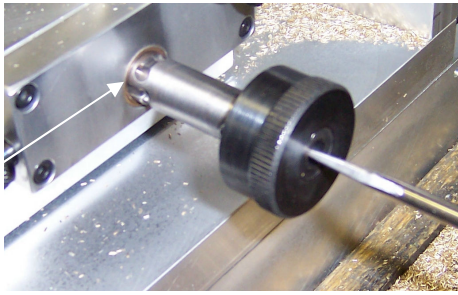


Figure 17: Use A Screwdriver To Adjust Rod

It may help to turn the machine on when performing adjustments. Turn the screwdriver so that the cutout portion of the key just touches the edge of the guide. With the key in this position, tighten both allen screws to lock the adjustment in place.

To adjust the spacing on the machine, set the depth rod for a #1 position. Most setup keys will have a deep cut in the first position. For Volkswagen, the setup key is cut to a #4 depth and for Honda the key is cut to a #6 depth. Loosen the two 3/32" allen screws as you did with the depth rod. Turn the space rod to the first cut at the bow of the key. You may need to adjust the space rod if it appears that the setup key will hit the guide before you reach the #1 space position.

Turn the screwdriver in the end of the rod to position the guide at the bow of the key. When properly positioned, the guide should enter the cut when you turn the depth rod to the deepest cut. If the guide does not enter the cut, turn the screwdriver until it does so. In this position, tighten both allen screws. The space rod is now calibrated properly.

Replacement Part Numbers

Chip Guard	GHMS461	3/32" Cutter	GHCB093
Cutter Head Clamp Nut	GHMS060	3/32" Guide	GHMS093
Drive Belt	F2MS601	3mm Cutter	GHCB3M
Hand-Held Key Stop	GESH029	3mm Guide	GHMS3M
Motor	DCMT002	5/32" Cutter	GHCC156
Plastic Ball(On Top Of Feed Handle)	GHMS051	5/32" Guide	GHMS156
Spindle Lever (Feed Handle)	GESH014		
Standard Vise Set	GSH0601		
Toggle Switch	F2MT008		
Vise Clamp Nut	GHMS061		
VW/Audi Vise Set	GSHAUD		

Support Information for Your Sidewinder 2 Key Machine

You can reach us in a variety of ways. If you have general questions about your machine, you can call or e-mail us. If you need help adjusting the machine, you will need to contact us by phone, as adjustment information is not easily relayed via e-mail. Always feel free to contact us with any questions or concerns you may have regarding your machine, we pride ourselves on excellent customer service!

Our contact information is as follows:

Framon Manufacturing Company, Inc
909 Washington Ave
Alpena, MI 49707
Phone: 989-354-5623
Fax: 989-354-4238
Website: www.framon.com
E-mail: support@framon.com

Our office is open from 8:00 am until 4:30 pm Monday through Friday, Eastern Time.

Sidewinder 2 Addendum

Please be aware of the following prior to using your Sidewinder 2 key machine:

- Keys generated on the machine will work properly but will not look identical to factory cut keys generated on computerized equipment.
- Depth rods are inserted in the right side of the machine. Depth rods are shorter than the space rods, which are inserted in the front of the machine.
- Several videos are available on our YouTube channel which takes the place of the video formerly included with the machine. Visit YouTube.com and search for “Framon Manufacturing”. You will see a variety of videos and can join our channel for updates & new product information.
- Please see the last page in the manual for information on our new style setup keys.
- Always inspect each key that you generate on the machine. Use a flat file to round any sharp corners before inserting the key into the lock.
- Never force a key into the lock. Doing so can damage the tumblers.
- If a key cut on the machine does not enter the lock easily, the typical reason is that the key has not been cut deep enough (the cutter is not down far enough).
- If you are cutting Kia, Hyundai, or Lexus keys, it is a good idea to precut the tip cut of the key out with the 5/32” cutter & guide. This will minimize cutter breakage. All keys will have a triangular cutout at the tip of the key, you can use the larger cutter to precut all of your keys at once.

If you have any questions on your new machine, please contact us at 989-354-5623.

Instructions For Additional SD2 Kits

If you purchase additional kits for the Sidewinder 2, each kit has specific cutting and setup information which will be detailed below. If your kit is not detailed below, contact Framon Manufacturing Company for kit-specific instructions.

NOTE: We have modified our setup keys starting in December of 2012. Please see the informational page at the end of this manual for more information.

BMW BH Code Series (4 Track)

Cutter & Guide: 5/32"

Vise Set: Standard "A"

Shallow Depth: 1-.276" (measured from right side of key with cuts on left side only)

Deepest Depth: 4-.205" (measured from right side of key with cuts on left side only)

First Space at Bow: .183" (measured on left side only from shoulder of key to first cut)

Setup Key Information: Key is cut to all #1 (shallow) depths on left side except for first cut at bow. First cut at bow is cut to #4 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Cuts on this key are offset with regard to spacing. When code cutting the key, shoulder stop the key for left side cuts. **When code cutting the right side of the key, insert the small spacer in between the shoulder of the key and vise for proper alignment.** Cut key bow to tip on both sides. You do not need to precut #1 cuts on this key, precut tip only.

General Motors "Z" Code Series (2 Track)

Cutter & Guide: 3/32"

Vise Set: Standard "A"

Shallow Depth: 1-.114"

Deepest Depth: 4-.052"

First Space at Bow: .886" (measured from tip of key)

Setup Key Information: Key is cut to all #1 (shallow) depths except for first cut at bow. First cut at bow is cut to #4 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: We suggest using HATA precut blades (part number HAT037) when code cutting these keys. If you do not have access to precut keys, use the 5/32" cutter & guide to duplicate as much of the tip cut from the setup key onto your blade as possible. This will reduce 3/32" cutter breakage. Precut blade to all #1 cuts before code cutting the rest of the key.

NEW SETUP KEY INFORMATION: If you have a new style setup key it will have a track milled in one side the length of the key (to precut your keys with) and a hole drilled in the opposite side. If you have this type of setup key, the hole is drilled at the first cut at the bow of the key and is at a #1 (shallow) depth. See the instructions at the end of this section to set up your depth and space rod. Be aware that any rods included in the box with your machine have already been aligned.

Fiat DE00001-11210 Code Series

Cutter & Guide: 3/32"

Vise Set: Standard "A"

Shallow Depth: 1-.166"

Deepest Depth: 4-.072"

First Space at Bow: .098" (measured from shoulder)

Setup Key Information: Key is cut to all #1 (shallow) depths except for first cut at bow.

First cut at bow is cut to #4 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Shoulder stop key. Precut key to all #1 cuts prior to code cutting the key. Use either the 5/32" or 3mm cutter to clear out the tip cut to preserve 3/32" cutter life.

Ford 10001 Code Series (Fiesta)

Cutter & Guide: 3 mm

Vise Set: Standard "A"

Shallow Depth: 1-.177"

Deepest Depth: 5-.083"

First Space at Bow: 1.100" (measured from tip back to first cut)

Setup Key Information: Key is cut to all #1 (shallow) depths except for first cut at bow.

First cut at bow is cut to #5 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Use angled shoulder of key blank to stop key when code cutting. Precutting the key to all #1 cuts can be done without setup key as you position the key to begin code cutting (turn depth rod to #1, turn space rod from key loading position to first space).

NOTE: After first cut is made in #1 position at head of key, you MUST turn the space rod backward (toward head/bow of key) to elongate the first cut or the key will not align properly in lock. Once you turn the space rod back to the stop (about ½ of a cut), turn the depth rod back to a #1 position. This builds a stop into the key.

Honda K, L, M, N (4 Track)

Cutter & Guide: 5/32"

Vise Set: Standard "A"

Shallow Depth: 1-.311" (measured from right side of key with cuts on left side only)

Deepest Depth: 6-.242" (measured from right side of key with cuts on left side only)

First Space at Bow: .732" (measured from tip back to first cut)

Setup Key Information: Key is cut to all #1 (shallow) depths on right side except for first cut at bow. First cut at bow is cut to #6 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: When cutting the Honda key, it is not necessary to precut the #1 depths on either side of the key; this can be done as you are positioning the carriage to begin code cutting by turning the depth rod to a #1 position & spacing the carriage to the first cut position. Use the setup key to duplicate the angled tip cuts onto the key.

Hyundai & Kia G & K0001-2500 Series (see below for alternate single key method with pink 3/32" plunge cutter)

Cutter & Guide: 3/32"

Vise Set: Standard "A"

Shallow Depth: 4-.118"

Deepest Depth: 1-.047"

First Space at Bow: .665" (measured from tip back to first cut)

Setup Key Information: Key is cut to all #4 (shallow) depths on right side except for first cut at bow. First cut at bow is cut to #1 (deep) depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Standard code cutting procedure will require that you use two blades to complete the key. Code cut all cuts onto the right side of the key, flip the blank over and code cut all cuts onto the left side of the key. Once both sides have been cut, move code cut key to left (pattern) vise and copy right side cuts onto a blank from tip to bow. Flip original key over & copy left side cuts onto same blank to complete first side.

NEW SETUP KEY INFORMATION: If you have a new style setup key it will have a hole drilled through the key. If you have this type of setup key, the hole is drilled at the first cut at the bow of the key and is at a #4 (shallow) depth. To align the rods you must use the side that does not have the tip cut out. See the instructions at the end of this section to set up your depth and space rod. Be aware that any rods included in the box with your machine have already been aligned.

Kia L0001-1000 (Internal 4 Track) (see below for alternate single key method with pink 3/32" plunge cutter)

Lexus "Long" 0001-5000, O0001-5000 (Internal 4 Track)

Mazda Mellenia 20001-21200 (Internal 4 Track)

Cutter & Guide: 3/32"

Vise Set: Standard "A"

Shallow Depth: 5-.118"

Deepest Depth: 1-.024"

First Space at Bow: .880" (measured from tip back to first cut)

Setup Key Information: "LL" Key is cut to all #5 (shallow) depths on right side except for first cut at bow. First cut at bow is cut to #1 right depth. Follow alignment procedure on pg 16.

Important Code Cutting Information: Standard code cutting procedure will require that you use two blades to complete the key. Code cut all cuts onto the right side of the key, flip the blank over and code cut all cuts onto the left side of the key. Once both sides have been cut, move code cut key to left (pattern) vise and copy right side cuts onto a blank from tip to bow. Flip original key over & copy left side cuts onto same blank to complete first side.

NEW SETUP KEY INFORMATION: If you have a new style setup key it will have two holes drilled through the key. For the Lexus Long rods use the hole closest to the bow (head) of the key. The hole closest to the tip of the key is for the Lexus Short series. If

you have this type of setup key, the hole is drilled at the first cut at the bow of the key and is at a #5 (shallow) depth. To align the rods you must use the side that does not have the tip cut out. See the instructions at the end of this section to set up your depth and space rod. Be aware that any rods included in the box with your machine have already been aligned.

Infiniti 0001-2000 Code Series (External 4 Track)

Cutter & Guide: 5/32"

Vise Set: Standard "A"

Shallow Depth: 1-.287" (measured from right side of key with cuts on left side only)

Deepest Depth: 4-.217" (measured from right side of key with cuts on left side only)

First Space at Bow: .728 measured from the tip to center of first cut

Setup Key Information: Key is cut to all #1 (shallow) depths on right side except for first cut at bow. First cut at bow is cut to #4 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Use angled shoulder to align key when code cutting. When cutting the key, it is not necessary to precut the #1 depths on either side of the key; this can be done as you are positioning the carriage to begin code cutting by turning the depth rod to a #1 position & spacing the carriage to the first cut position. You will need to precut the angled tip cuts onto the key.

Lexus 40001-49999 Code Series (Internal 4 Track) (see below for alternate single key method with 3/32" pink tube cutter)

Cutter & Guide: 3/32"

Vise Set: Standard "A"

Shallow Depth: 5-.113"

Deepest Depth: 1-.052"

First Space at Bow: .597" (measured from tip back to first cut)

Setup Key Information: "LS" Key is cut to all #5 (shallow) depths on right side except for first cut at bow. First cut at bow is cut to #1 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Standard code cutting procedure will require that you use two blades to complete the key. Code cut all cuts onto the right side of the key, flip the blank over and code cut all cuts onto the left side of the key. Once both sides have been cut, move code cut key to left (pattern) vise and copy right side cuts onto a blank from tip to bow. Flip original key over & copy left side cuts onto same blank to complete first side.

NEW SETUP KEY INFORMATION: If you have a new style setup key it will have two holes drilled through the key. For the Lexus Short rods use the hole closest to the tip of the key. The hole closest to the bow of the key is for the Lexus Long series. If you have this type of setup key, the hole is drilled at the first cut at the bow of the key and is at a #5 (shallow) depth. To align the rods you must use the side that does not have the tip cut out. See the instructions at the end of this section to set up your depth and space rod. Be aware that any rods included in the box with your machine have already been aligned.

Lexus 80000-89999 Code Series (Internal 4 Track)

Cutter & Guide: 3/32" (must use GHCB093LS)

Vise Set: Standard "A"

Shallow Depth: 4-.118"

Deepest Depth: 1-.041"

First Space at Bow-Left Side: .630" (measured from tip back to first cut, #1 cut on space rod)

First Space at Bow-Right Side: .583" (measured from tip back to first cut, #2 cut on space rod)

Setup Key Information: Setup key has a 3/32" hole drilled at the first cut on the right side of key (bow) which is at position #2 on the space rod and a #4R position on the depth rod. Follow alignment procedure on last page. **Note that the precut tip on the setup key and the alignment hole will be on the same side, contrary to the setup instructions below.**

Important Code Cutting Information: You must use the GHCB093LS ("pink tube") cutter to originate this key. The cutter was optional on original SD2 machines but is now included in the SD2-LX package. The spacing rod in this kit is numbered 1-8 with odd cuts (1,3,5,7) being the left side cuts and even cuts (2,4,6,8) being the right side cuts. Be careful when loading this key into the vise, make sure it sits flat – if you use keys that have the bottom side precut one side is taller than the other.

Mercedes 700001 Code Series (4 Track)

Cutter & Guide: 5/32"

Vise Set: Standard "A"

Shallow Depth: 1-.302" (measured from right side of key with cuts on left side only)

Deepest Depth: 6-.192" (measured from right side of key with cuts on left side only)

First Space at Bow: .179" (measured from shoulder of key)

Setup Key Information: Key is cut to all #1 (shallow) depths on right side except for first cut at bow. First cut at bow is cut to #6 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: When cutting the key, it is not necessary to precut the #1 depths on either side of the key; this can be done as you are positioning the carriage to begin code cutting by turning the depth rod to a #1 position & spacing the carriage to the first cut position. Angled tip cut must be copied onto key blank.

Saab BC & 2S Code Series (2 Track)

Cutter & Guide: 5/32"

Vise Set: Standard "A"

Shallow Depth: 0-.205"

Deepest Depth: 7-.198"

First Space at Bow: 1.031" (measured from tip to center of first cut)

Setup Key Information: Key is cut to all #0 (shallow) depths except for first cut at bow. First cut at bow is cut to #7 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Precutting of shallow cuts on key not necessary however angled tip cut must be copied.

Subaru T0001-3000 Code Series (4 Track)

Cutter & Guide: 5/32"

Vise Set: Standard "A"

Shallow Depth: 1-.291"

Deepest Depth: 4-.215"

First Space at Bow: .772" (measured from tip to center of first cut)

Setup Key Information: Key is cut to all #1 (shallow) depths on right side except for first cut at bow. First cut at bow is cut to #4 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: When cutting the key, it is not necessary to precut the #1 depths on either side of the key; this can be done as you are positioning the carriage to begin code cutting by turning the depth rod to a #1 position & spacing the carriage to the first cut position. Angled tip cut must be copied onto key blank.

Volkswagen HAA0001-6000 Code Series (Internal 2 Track)

Cutter & Guide: 3mm

Vise Set: VW "V"

Shallow Depth: 1-.114"

Deepest Depth: 4-.055"

First Space at Bow: .902" (measured from shoulder of key)

Setup Key Information: Key is cut to all #1 (shallow) depths except for first cut at bow. First cut at bow is cut to #4 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Precut blade to all #1 cuts before code cutting the rest of the key. Copy angled tip cut onto key.

Hyundai / Kia / Lexus Single Key Method – Four Track Keys Only!

NOTE: A second method to code cutting the key can be used by purchasing a special cutter (Part Number GHCB093LX) and setup key. This cutter is able to cut vertically (similar to a drill press). This method requires only one key blank to originate a key. To code cut using this method, the cutter is not "locked down" into the key cutting position to side mill the key.

Align the cutter & guide as you normally would. Do not lock down the cutter & guide. Insert the special setup key that is completely flat on one side. Simply turn the depth & space rod to the correct positions & pull the spindle lever down to make the cut, making sure the cutter completely bottoms out. Continue in this fashion until all cuts on the key are made. For a key that works more smoothly, remove peaks between cuts by going to one depth shallower and turning space rod. The LX cutter is not designed to continually make cuts in a side-milling fashion & will break if you attempt to use it to duplicate a key. Be sure to use a larger cutter such as the 5/32" to precut the tip cuts from the standard setup key to your blank.

Hyundai / Kia C1001-3500 Code Series (Cut On Right Side Of Key)

Cutter & Guide: 3/32"

Vise Set: Standard "A"

Shallow Depth: 5-.157"

Deepest Depth: 1-.079"

First Space at Bow: .799" (measured from tip)

Setup Key Information: The C series shares a depth rod with the T1001-3500 series below. Align the depth and space rod per the instructions below which will place the C series cuts in the correct position.

Important Code Cutting Information: Tip stop key. Precut key to all #5 cuts prior to code cutting the key. Use either the 5/32" or 3mm cutter to clear out the tip cut to preserve 3/32" cutter life. Use right side cuts on depth rod to originate key.

Hyundai / Kia T1001-3500 Code Series (Cut On Left Side Of Key)

Cutter & Guide: 3/32"

Vise Set: Standard "A"

Shallow Depth: 5-.157"

Deepest Depth: 1-.079"

First Space at Bow: .799" (measured from tip)

Setup Key Information: Key is cut to all #5 (shallow) depths except for first cut at bow. First cut at bow is cut to #1 (deep) depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Tip stop key. Precut key to all #5 cuts prior to code cutting the key. Use either the 5/32" or 3mm cutter to clear out the tip cut to preserve 3/32" cutter life. Use left side cuts on depth rod to originate key.

BMW 2 Track HBA0001-6000 Series

Cutter & Guide: 3mm

Vise Set: Standard "B"

Shallow Depth: 1-.150"

Deepest Depth: 4-.079"

First Space at Bow: .984" (measured from tip)

Setup Key Information: Key is cut to all #1 (shallow) depths except for first cut at bow. First cut at bow is cut to #4 depth. Follow alignment procedure on page 16.

Important Code Cutting Information: Tip stop key. Precut key to all #1 cuts prior to code cutting the key.

Instructions For New-Style Setup Keys (introduced December 2012)

We have introduced a new method to align depth & space rods with a different style setup key. You can recognize newer-style setup keys if there is a hole drilled completely through the key blank. This hole takes the place of the alignment cuts on older style setup keys. **When aligning rods, ALWAYS use the side that DOES NOT have the tip cut out on the blade (except Lexus 80000 series)!** Refer to the information above to determine which space and depth you should align your rods with. We will refer to the Lexus Long rods in this example.

In the case of the Lexus Long rods, this position is the first cut at the bow and a #5 (shallowest) depth on the right side. Insert the setup key (again, with the tip pre-cut side down) and align the tip with the end of the vise. Insert the proper guide (in this case, 3/32") into the right collet. Lock the depth and space rod into position using the thumb screws. Turn the space rod to the first position at the head of the key (using the 1-8 scale) and the depth rod to the #5R position. Turn the screw in the end of the rod using a flat screwdriver until you can bring the guide down into the pre-drilled hole in the setup key. Once you have aligned the two rods properly, tighten the allen screws on both sides of the rods and you are ready to code cut keys.

NOTE: Any rods included in the shipping box with your SD2 have already been aligned at the factory – they do not require adjustment.